

REMARKS

Claims 1-15 are pending. Claims 7, 8, 10, and 13 are rejected under 35 U.S.C. § 112, first paragraph. Claims 1-3, 7, and 10 are rejected under 35 U.S.C. § 112, second paragraph. Claims 4, 8, 12, and 13 are rejected under 35 U.S.C. § 102(b). Claims 1-3, 5, 6, 7, 9, 7, 10, 11, 14, and 15 are rejected over 35 U.S.C. § 103(a). Each of the rejections is addressed below.

Support for the Amendments

Support for the amendments is found throughout the specification and claims as originally filed. No new matter has been added. For example, support for the amendment of claims 7, 8, and 10, which recite food packaging material that “incorporates” a hop acid is found at page 6, lines 4 and 5; support for the amendment of claims 8 and 13, which recite that the hop acid “controls” a microorganism is found, for example, at page 6, lines 4 and 5; the amendment of claims 7 and 10, which now recite “a hop extract containing about 9% hexahydroisoalpha acids” is found, for example, at page 3, lines 5-7.

Amendment and cancellation of the claims are not to be construed as acquiescence to any of the rejections/objections made in the instant Office Action or in any previous Office Action, and were done solely to expedite prosecution of the application. Applicants hereby reserve the right to pursue the claims as originally filed, and without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter. Amendment of any claim herein is not to be construed as acquiescence to any of the rejections/objections set forth in the instant Office Action, and was done to expedite prosecution of the application.

Rejections under 35 U.S.C. § 112, first paragraph

Claims 7, 8, 10, and 13 are rejected under 35 U.S.C. § 112, first paragraph, as lacking an adequate written description.

Regarding the rejection of claims 7 and 8, the Examiner asserts that the specification only provides support for hop acids that are “incorporated” into food packaging materials. Regarding the rejection of claims 8 and 13, the Examiner asserts that the specification only provides support for the use of hop acids that “control” microorganisms. Applicants respectfully

disagree. Nevertheless, without acquiescing in any way to the rejection and in order to expedite prosecution and facilitate allowance of the application, claims 7, 8, and 10 now recite a food packaging material that “incorporates” a hop acid; and claims 8 and 13 now recite that the hop acid “controls” a microbial organism. Accordingly, the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1-3, 7, and 10 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Applicants respectfully disagree and traverse the rejection. Nevertheless, without acquiescing in any way to the rejection and in order to expedite prosecution and facilitate allowance of the application, Applicants have amended the claims.

Claim 1 was rejected for alleged indefiniteness based on the assertion the it was unclear whether the hop acids were added to detergents, to cleansers, or to a combination of detergents and cleansers. Claim 1, from which claims 2 and 3 depend, now recites “mixing-the hop acids with a detergent or a cleanser in an amount to inhibit microbial organisms; and delivering the hop acids to the food processing facility.” Accordingly, the indefiniteness rejection of claims 1-3 should be withdrawn.

Claims 7 and 10 were rejected as allegedly indefinite for reciting the tradename “HEXAHOP™.” The rejection is overcome by deletion of the term “HEXAHOP™.” The claims now recite “a hop extract containing about 9% hexahydroisoalpha acids.” Accordingly, the indefiniteness rejection of claim 7 and 10 should be withdrawn.

Rejections under 35 U.S.C. § 102(b)

Claims 4, 8, 12, and 13, which are directed to food packaging materials that control microorganisms, and methods of making and using such materials, are rejected under 35 U.S.C. § 102(b) as anticipated by Barney et al. (U.S. Patent No. 5,455,038; hereinafter “Barney”). Applicants respectfully disagree.

Nevertheless, in order to expedite prosecution and facilitate allowance, Applicants’ claims are now directed to methods of using hop acids as an antimicrobial agent by incorporating hexahydroisoalpha acids into a food packaging material (claim 4); to food packaging materials incorporating hexahydroisoalpha acids (claim 8); and methods of making

such food packaging materials (claims 12 and 13). Barney fails to describe methods or compositions featuring hexahydroisoalpha acids as recited in Applicants' claims. Thus, Barney cannot destroy the novelty of Applicants' invention. Accordingly, the rejection of the claims under 35 U.S.C. § 102(b) should be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Claims 1-3, 5, 6, 7, 9, 10, 11, 14, and 15 are rejected under 35 U.S.C. § 103(a). In particular, claims 7 and 10 are rejected over Barney; claim 1 is rejected over Barney in view of Millis et al. (U.S. Patent No. 5,286,506; hereinafter "Millis"); claims 6, 9, and 14 are rejected over Barney in view of Barney et al. (U.S. Patent No. 7,005,453; hereinafter "Barney II"); claim 2 is rejected as over Barney in view of Millis and Barney II; and claims 5, 11, and 15 are rejected over Barney in view of Probasco et al., (U.S. Patent Publication 2003/0129270; hereinafter "Probasco").

Claims 1-3 are directed to method of using hop acids as an antimicrobial agent for a food processing facility; claims 5, 6, 7, 9, 10, and 11 are directed to methods of using hexahydroisoalpha acids as an antimicrobial agent by incorporating hexahydroisoalpha acids into a food packaging material; and claims 14 and 15 are directed to methods of making a food packaging material incorporating hexahydroisoalpha acids.

I. Standard for Obviousness

The test of obviousness requires that one compare the claimed "subject matter as a whole" with the prior art "to which said subject matter pertains" 35 U.S.C. § 103(a). To establish a *prima facie* case of obviousness, three criteria must be met. First, a suggestion or motivation to modify the reference or combine reference teachings must be present in the references or in the general knowledge present in the art. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. M.P.E.P. 2143. The burden is on the Examiner to show that the references expressly or impliedly suggest all of the claim limitations. M.P.E.P. 2142. "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons skilled in the art." *In re Rouffet*, 149 F.3d 1350, 1357. In the absence of some teaching or suggestion to combine, no *prima facie* case

of obviousness can be established, and the rejection is improper and must be withdrawn. *In re Fine*, 837 F.2d 1071, 1074.

II. None of the cited references teaches or suggests methods for delivering hop acids to a food processing facility

Claims 1-3 are rejected over Barney and one or more of Millis, Barney II, and Probasco. Barney describes methods of inhibiting *Listeria* growth in food by treating the food with a solution of tetrahydroisohumulone or hexahydrocolupulone. As acknowledged by the Examiner at page 7, line 14, Barney fails to teach or suggest methods of using hop acids as an anti-microbial by delivering the hop acids to a food processing facility as recited in claim 1, from which claims 2 and 3 depend. The Examiner states, "Barney does not appear to specifically state that the hop acids are used in a food processing facility." (Office action mailed October 10, 2006, page 5, lines 4 and 5)

Nor would the skilled artisan be motivated to adapt the compositions and methods described by Barney to arrive at Applicants' claimed methods. Barney emphasizes the desirability of using hexahydrocolupulone or tetrahydroisohumulone in foods because they are advantageously tasteless. Barney states, "One advantage of using hexahydrocolupulone is that it is not bitter in flavor and should have little organoleptic effect on foods (column 1, lines 48-50). In fact, Barney defines the amount of hexahydrocolupulone or tetrahydroisohumulone to be used as an antimicrobial in terms of its flavor. At column 1, line 67, to column 2, line 3, Barney states:

Safe and effective amount" as used herein means an amount of the inhibitor which is enough to provide the desired inhibition, but not so high as to cause undesirable other properties, such as an unacceptable taste. The safe and effective amount will vary with the particular inhibitor chosen, and the taste or flavoring of the particular food to which the inhibitor is to be added or which is to be wrapped in the packaging materials containing the inhibitor.

By directing the skilled artisan toward the use of hexahydrocolupulone or tetrahydroisohumulone in food, Barney teaches away from Applicants' claimed methods, which require mixing hop acids with detergent or cleanser. Mixing hop acids with detergents or cleansers is inconsistent with the use described by Barney (e.g., the treatment of solid foods). In

view of this teaching away, one of skill in the art would lack the requisite motivation to adapt the methods of Barney to arrive at Applicants' claimed methods.

Millis fails to remedy the deficiencies of Barney. Like Barney, Millis discloses the use of hop acids to protect food from contamination with *Listeria*. In fact, Miller too states that the hop acids used for food preservation are advantageously tasteless. Millis states, "the beta acids are useful as a bacteriocide against a dangerous food pathogen (*Listeria*) at levels below that at which a noticeable flavor from the beta acids is detectable (column 1, lines 42-45)." Thus, by directing the skilled artisan toward the use of hop acids as an anti-microbial agent in food, Millis teaches away from Applicants' claimed methods, which require mixing the hop acids with a detergent or a cleanser.

In support of the obviousness rejection, the Examiner states that Millis describes delivering hop acids in a detergent. The Examiner states, "The patent further discloses that the hop acids are delivered in a detergent (As broadly defined, NaOH (column 3, line 42) is a detergent." (Office action mailed October 10, 2006, page 5, lines 18-20) Applicants respectfully disagree. As evidenced in attached Exhibits A and B ("Detergent," *Britannica Concise Encyclopedia*, <http://www.answers.com/library/Britannica+Concise-cid-847613342>; and "Surfactant," *McGraw-Hill Encyclopedia of Science and Technology*, 5th <http://www.answers.com/surfactants%2>), one of skill in the art understands that detergents are amphiphiles that include a hydrophobic tail portion and a hydrophilic polar head group, which allows them to act as emulsifiers. Sodium hydroxide lacks these characteristics. Accordingly, one of skill in the art would not understand that sodium hydroxide is encompassed by the term "detergent." Moreover, even if we accept *arguendo* that NaOH is a detergent, Millis still cannot be used to support the obviousness rejection because Millis fails to describe methods of **delivering** hop acids in NaOH. The portion of the patent cited by the Examiner describes methods for the **solvent extraction** of hop acids using NaOH (column 3, lines 34-68). In sum, Millis fails to teach or suggest methods for delivering any hop acid in a detergent to a food processing facility; therefore, Millis fails to remedy the deficiencies of Barney.

Barney II describes methods and compositions for inhibiting *Listeria* or *Staphylococcus aureus* in feminine hygiene products. Barney II fails to teach or suggest methods for delivering any hop acid in a detergent to a food processing facility. In the absence of such a teaching or

suggestion, Barney II cannot remedy the deficiencies of the other cited references. Accordingly, the rejection of claims 1-3 over these references should be withdrawn.

III. None of the cited references teaches or suggests using hexahydroisoalpa acids in food packaging

Claim 7 is rejected as allegedly obvious over Barney; claims 6, 9, and 14 are rejected as obvious over Barney in view of Barney II; and claims 5, 11, and 15 are rejected as obvious over Barney in view of Probasco. Each of the rejected claims now recites a food packaging material that incorporates a hexahydroisoalpa acid in an amount to inhibit a microbial organism. Barney and Barney II fail to teach or suggest compositions or methods featuring the use of hexahydroisoalpa acids in food packaging as acknowledged by the Examiner at page 7, lines 13 and 14.

The Examiner seeks to remedy the deficiencies of Barney and Barney II by citing Probasco. Regarding Probasco, the Examiner states:

Probasco discloses a method and apparatus for making pesticides from hop extracts. The publication states that hop acids including hexahydroisoalpa acids are used to inhibit microorganisms (as broadly interpreted a pesticide is a microorganism) and are used in the food industry. (Emphasis added; citations omitted.) (Office action mailed October 10, 2006, page 7, lines 15-18)

Applicants respectfully disagree. Pesticides are typically used to control garden pests, such as insects and spiders as evidenced in Probasco. At paragraph 2, lines 1-3, Probasco states, "Chemical pesticides are used in commercial agriculture, home gardening, residential use, and similar applications for the purpose of controlling insects and spiders." (Emphasis added.) One of skill in the art would not interpret or understand the term "pesticide" to encompass compositions for the control of microorganisms. Thus, Probasco fails to remedy the deficiencies of the other cited references.

In sum, none of the references cited by the Examiner, alone or in any combination, teaches or suggests methods of delivering hop acids to a food processing facility or food packaging materials that incorporate hexahydroisoalpa acids and methods of making and using such materials. The references cited by the Examiner fail to provide the requisite motivation to combine; fail to provide a reasonable expectation of success; and fail to teach or suggest all of Applicants' claim limitations. Accordingly, Applicants respectfully submit a prima facie case


for obviousness is not established and request that the obviousness rejection of the claims be withdrawn.

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance. Should any of the claims not be found to be allowable, the Examiner is requested to telephone Applicants' undersigned representative at the number below. Applicants thank the Examiner in advance for this courtesy. The Director is hereby authorized to charge or credit any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

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